

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
United States Patent and Trademark  
Office  
Box PCT  
Washington, D.C. 20231  
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 29 May 2000 (29.05.00)	
International application No. PCT/SE99/01701	Applicant's or agent's file reference Case 627 PCT
International filing date (day/month/year) 27 September 1999 (27.09.99)	Priority date (day/month/year) 06 October 1998 (06.10.98)
Applicant OLOFSSON, Ola et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

03 May 2000 (03.05.00)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was



was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

BEST AVAILABLE COPY

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer:  Claudio Borton  Telephone No.: (41-22) 338.83.38
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## PATENT COOPERATION TREATY

PCT

NOTIFICATION CONCERNING  
SUBMISSION OR TRANSMITTAL  
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

From the INTERNATIONAL BUREAU

To:

STENBERG, Yngve  
Perstorp AB  
S-284 80 Perstorp  
SUÈDE

Date of mailing (day/month/year) 17 January 2000 (17.01.00)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference Case 627 PCT	
International application No. PCT/SE99/01701	
International publication date (day/month/year) Not yet published	
International filing date (day/month/year) 27 September 1999 (27.09.99)	Priority date (day/month/year) 06 October 1998 (06.10.98)
Applicant PERSTORP FLOORING AB et al	

- The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
- An asterisk(\*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
06 Octo 1998 (06.10.98)	9803379-8	SE	23 Dece 1999 (23.12.99)
10 Febr 1999 (10.02.99)	9900432-7	SE	23 Dece 1999 (23.12.99)
12 Augu 1999 (12.08.99)	9902883-9	SE	23 Dece 1999 (23.12.99)

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer

Marc Salzman

Telephone No. (41-22) 338.83.38



# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

## PCT

T :

Stenberg, Yngve  
c/o Perstorp AB  
284 80 PERSTORP

### NOTIFICATION OF RECEIPT OF DEMAND BY COMPETENT INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

(PCT Rules 59.3(e) and 61.1(b), first sentence  
and Administrative Instructions, Section 601(a))

Date of mailing (day/month/year) **03-05-2000**

Applicant's or agent's file reference  
**CASE 627 PCT**

#### IMPORTANT NOTIFICATION

International application No.

**PCT/SE99/01701**

International filing date (day/month/year)

**27-09-1999**

Priority date (day/month/year)

**06-10-1998**

Applicant

**Perstorp Flooring AB  
et al**

1. The applicant is hereby notified that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

**03-05-2000**

2. This date of receipt is:

- ☒ the actual date of receipt of the demand by this Authority (Rule 61.1(b)).
- ☐ the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).
- ☐ the date on which this Authority has, in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☐ **ATTENTION:** That date of receipt is **AFTER** the expiration of 19 months from the priority date. Consequently, the election(s) made in the demand does (do) not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)). Therefore, the acts for entry into the national phase must be performed within 20 months from the priority date (or later in some Offices) (Article 22). For details, see the *PCT Applicant's Guide*, Volume II.

- ☐ (If applicable) This notification confirms the information given by telephone, facsimile transmission or in person on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

Name and mailing address of the IPEA/  
Patent- och registreringsverket  
Box 5055  
S-102 42 STOCKHOLM  
Facsimile No. **08-667 72 88**

Telex  
17978  
PATOREG-S

Authorized officer

**Britt-Marie Little**

Telephone No. **08-782 25 00**

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>Case 627 PCT</b>	<div style="display: flex; justify-content: space-between;"> <div><b>FOR FURTHER ACTION</b></div> <div>See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)</div> </div>	
International application No. <b>PCT/SE99/01701</b>	International filing date (day/month/year) <b>27.09.1999</b>	Priority date (day/month/year) <b>06.10.1998</b>
International Patent Classification (IPC) or national classification and IPC7 <b>E04F 15/04</b>		
Applicant <b>Perstorp Flooring AB et al</b>		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  <b>03.05.2000</b>	Date of completion of this report  <b>12.01.2001</b>
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. 08-667 72 88	Authorized officer  <b>Örjan Nylund / JA A</b> Telephone No. 08-782 25 00

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☐ the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the claims:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, as amended (together with any statement) under article 19  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheet/fig \_\_\_\_\_

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2 (c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-10</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-10</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-10</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The present invention relates to a flooring material comprising board shaped floor elements, which are joined vertically by means of separate assembly profiles.

The purpose of the invention is to achieve a floor that can withstand handling, demands a minimum of milling of the decorative top surface and is easy to install.

The floor boards (1) according to the invention are provided with edges (2) which are provided with a groove (2'). The floor boards (1) are snap-joined by means of separate joining profile (10). All edges (2) are provided with one groove (4) each arranged parallel to its respective edge (2). The joining profiles (10) are provided with lips (11) arranged in pairs. The lips (11) each are intended to be received by the groove (4) of a floor board (1) guiding and fixing adjacent floor boards (1) horizontally. The joining profile (10) is provided with a central cheek section (13) which is comprised by a first and a second independently resilient cheek (13' and 13'' respectively). The cheek (13', 13'') are provided with one tongue (14', 14'') each whereby the tongues (14', 14'') are intended to be received by one groove (2') each so that adjacent floor boards (1) are guided in a vertical direction.

The cited Swedish patent application SE 8202375-5 describes a similar floor and is considered to be the most relevant citation. However, the claimed invention differs in that the cheek section (13) comprises a first and a second independently resilient cheek (13', 13'') which snaps into the groove (2') on the adjacent floor boards. The floor according to the invention can thereby easily be installed.

.../...

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: V.

The remaining cited documents describe different floor systems assembled by various joining profiles.

The claimed invention is therefore novel. It can also be considered to involve an inventive step and to have industrial applicability.

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>Case 627 PCT</b>	<div style="display: flex; justify-content: space-between;"> <div>FOR FURTHER ACTION</div> <div>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</div> </div>	
International application No. <b>PCT/SE 99/01701</b>	International filing date (day/month/year) <b>27 Sept 1999</b>	(Earliest) Priority Date (day/month/year) <b>6 October 1998</b>
Applicant <b>Perstorp Flooring AB et al</b>		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).
  
2. ☐ Unity of invention is lacking (See Box II).
  
3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing
 

☐ filed with the international application.  
☐ furnished by the applicant separately from the international application,  

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ transcribed by this Authority.
  
4. With regard to the title,
 

☐ the text is approved as submitted by the applicant.  
☒ the text has been established by this Authority to read as follows:  
**Flooring material comprising board shaped floor elements which are joined vertically by means of separate assembly profiles.**
  
5. With regard to the abstract,
 

☒ the text is approved as submitted by the applicant.  
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
  
6. The figure of the drawings to be published with the abstract is:  
 Figure No. 1b

☐ as suggested by the applicant. ☐ None of the figures  
☒ because the applicant failed to suggest a figure.  
☐ because this figure better characterizes the invention.



# INTERNATIONAL SEARCH REPORT

1

International application No.  
PCT/SE 99/01701

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: E04F 15/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: E04F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SE 8202375 A (IKEA SVENSKA AB), 16 October 1983 (16.10.83), figure 1, detail 7,8,3,11 --	1-7
A	SE 462809 B (C.-G. BARNER), 3 Sept 1990 (03.09.90), page 4, line 15 - line 18, figure 2, detail 3 --	8
A	FR 2697275 A1 (CREBAT), 29 April 1994 (29.04.94), figure 2 --	1-7
A	FR 2268922 A1 (LES ENTREPRISES BRIATTE ET CIE), 21 November 1975 (21.11.75), detail 40,41,42 --	8-10

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

- \* Special categories of cited documents
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "B" earlier document but published on or after the international filing date
- "I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "F" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

17 January 2000

Date of mailing of the international search report

07 -02- 2000

Name and mailing address of the ISA  
Swedish Patent Office  
Box 5055, S-102 42 STOCKHOLM  
Facsimile No. +46 8 666 02 86

Authorized officer  
Örjan Nylund / MR  
Telephone No. +46 8 782 25 00

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/01701

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4067155 A (D.L. RUFF ET AL), 10 January 1978 (10.01.78), figures 1,2  -----	8-10

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

02/12/99

International application No.

PCT/SE 99/01701

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
SE	8202375	A	16/10/83	NONE	
SE	462809	B	03/09/90	SE 8802597 A	12/04/90
FR	2697275	A1	29/04/94	NONE	
FR	2268922	A1	21/11/75	NONE	
US	4067155	A	10/01/78	DE 2638518 A,B,C FR 2322244 A,B	03/03/77 25/03/77

# PCT

## REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference  
(if desired) (12 characters maximum)

Case 627 PCT

<b>Box No. I</b>	<b>TITLE OF INVENTION</b>		
	Vertically joined floor boards		
<b>Box No. II</b>	<b>APPLICANT</b>		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)  Perstorp Flooring AB Strandridaregatan 8 S-231 25 Trelleborg Sweden		<input type="checkbox"/> This person is also inventor.  Telephone No. +46 410 36 31 00  Facsimile No. +46 410 15560  Teleprinter No.	
State (that is, country) of nationality: SE		State (that is, country) of residence: SE	
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input checked="" type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box			
<b>Box No. III</b>	<b>FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)</b>		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)  Olofsson, Ola Torupsgatan 23 S-231 66 Trelleborg/Sweden		This person is:  <input type="checkbox"/> applicant only <input checked="" type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)	
State (that is, country) of nationality: SE		State (that is, country) of residence: SE	
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box			
<input checked="" type="checkbox"/> Further applicants and/or (further) inventors are indicated on a continuation sheet.			
<b>Box No. IV</b>	<b>AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE</b>		
The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:		<input checked="" type="checkbox"/> agent <input type="checkbox"/> common representative	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)  Stenberg, Yngve c/o Perstorp AB S-284 80 Perstorp/Sweden		Telephone No. +46 435 38310  Facsimile No. +46 435 38920  Teleprinter No. 72000 perstp s	
<input type="checkbox"/> Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.			

Continuation of Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)	
<i>If none of the following sub-boxes is used, this sheet should not be included in the request.</i>	
<p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p> <p style="margin-left: 40px;">Mårtensson, Göran Vallby 878 S-231 97 Klagstorp/Sweden</p>	<p>This person is:</p> <p><input type="checkbox"/> applicant only</p> <p><input checked="" type="checkbox"/> applicant and inventor</p> <p><input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p>
State (that is, country) of nationality: SE	State (that is, country) of residence: SE
<p>This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p>	
<p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p>	<p>This person is:</p> <p><input type="checkbox"/> applicant only</p> <p><input type="checkbox"/> applicant and inventor</p> <p><input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p>
State (that is, country) of nationality:	State (that is, country) of residence:
<p>This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p>	
<p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p>	<p>This person is:</p> <p><input type="checkbox"/> applicant only</p> <p><input type="checkbox"/> applicant and inventor</p> <p><input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p>
State (that is, country) of nationality:	State (that is, country) of residence:
<p>This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p>	
<p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p>	<p>This person is:</p> <p><input type="checkbox"/> applicant only</p> <p><input type="checkbox"/> applicant and inventor</p> <p><input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p>
State (that is, country) of nationality:	State (that is, country) of residence:
<p>This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p>	
<p>Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)</p>	<p>This person is:</p> <p><input type="checkbox"/> applicant only</p> <p><input type="checkbox"/> applicant and inventor</p> <p><input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)</p>
State (that is, country) of nationality:	State (that is, country) of residence:
<p>This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box</p>	
<p><input type="checkbox"/> Further applicants and/or (further) inventors are indicated on another continuation sheet.</p>	

## Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes: at least one must be marked):

## Regional Patent

- ☒ AP ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ EA Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ EP European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ OA OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line) .....

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| <input checked="" type="checkbox"/> AL Albania                               | <input checked="" type="checkbox"/> LS Lesotho                                   |
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| <input checked="" type="checkbox"/> AT Austria                               | <input checked="" type="checkbox"/> LU Luxembourg                                |
| <input checked="" type="checkbox"/> AU Australia                             | <input checked="" type="checkbox"/> LV Latvia                                    |
| <input checked="" type="checkbox"/> AZ Azerbaijan                            | <input checked="" type="checkbox"/> MD Republic of Moldova                       |
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| <input checked="" type="checkbox"/> BB Barbados                              | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BG Bulgaria                              | <input checked="" type="checkbox"/> MN Mongolia                                  |
| <input checked="" type="checkbox"/> BR Brazil                                | <input checked="" type="checkbox"/> MW Malawi                                    |
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| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein  | <input checked="" type="checkbox"/> NZ New Zealand                               |
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| <input checked="" type="checkbox"/> EE Estonia                               | <input checked="" type="checkbox"/> SE Sweden                                    |
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Box No. VI PRIORITY CLAIM				
<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.				
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application: regional Office	international application: receiving Office
item (1) 06-10-1998	9803379-8	Sweden	-	
item (2) 10-02-1999	9900432-7	Sweden	-	
item (3) 12-08-1999	9902883-9	Sweden		

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): SE 9803379-8 SE 9900432-7 SE 9902883-9

\* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

Box No. VII INTERNATIONAL SEARCHING AUTHORITY		
Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):	Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):	
ISA /	Date (day/month/year)	Number Country (or regional Office)
	We have not yet received the ITS-Report	

Box No. VIII CHECK LIST: LANGUAGE OF FILING	
This international application contains the following number of sheets:	This international application is accompanied by the item(s) marked below:
request : 4	1. <input checked="" type="checkbox"/> fee calculation sheet
description (excluding sequence listing part) : 7	2. <input type="checkbox"/> separate signed power of attorney
claims : 2	3. <input checked="" type="checkbox"/> copy of general power of attorney; reference number, if any: GF 92/91
abstract : 1	4. <input type="checkbox"/> statement explaining lack of signature
drawings : 2	5. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s):
sequence listing part of description : 16	6. <input type="checkbox"/> translation of international application into (language):
Total number of sheets : 16	7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material
	8. <input type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form
	9. <input type="checkbox"/> other (specify):

Figure of the drawings which should accompany the abstract: Language of filing of the international application: English

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

Perstorp 1999-09-24  
PERSTORP FLOORING AB

Yngve Stenberg

For receiving Office use only	
1. Date of actual receipt of the purported international application:	2. Drawings: <input type="checkbox"/> received: <input type="checkbox"/> not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:	
4. Date of timely receipt of the required corrections under PCT Article 11(2):	
5. International Searching Authority (if two or more are competent): ISA /	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.

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Annex to the Request

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International application No.

Date stamp of the receiving Office

Applicant's or agent's  
file reference

Case 627 PCT

Applicant Perstorp Flooring AB  
Strandridaregatan 8  
S-231 25 Trelleborg/Sweden

CALCULATION OF PRESCRIBED FEES

1. TRANSMITTAL FEE . . . . . 1000 T  
2. SEARCH FEE . . . . . 8510 S

International search to be carried out by \_\_\_\_\_  
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Basic Fee

The international application contains \_\_\_\_\_ sheets.

first 30 sheets . . . . . 3500 b1

\_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_ b2  
remaining sheets additional amount

Add amounts entered at b1 and b2 and enter total at B . . . . . 3500 B

Designation Fees

The international application contains \_\_\_\_\_ designations.

10 x 800 = 8000 D  
number of designation fees amount of designation fee payable (maximum 10)

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(Applicants from certain States are entitled to a reduction of 75% of the international fee. Where the applicant is (or all applicants are) so entitled, the total to be entered at I is 25% of the sum of the amounts entered at B and D.)

4. FEE FOR PRIORITY DOCUMENT (if applicable) . . . . . P

5. TOTAL FEES PAYABLE . . . . . 21010

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Signature



ANNEX G1

Power of Attorney  
(Concerning a Given International Application)

ANNEX G1

PATENT COOPERATION TREATY  
APPOINTMENT OF AGENT OR COMMON REPRESENTATIVE

POWER OF ATTORNEY

The undersigned applicant(s):

Olofsson, Ola  
Torupsgatan 23  
S-231 66 Trelleborg  
Sweden

Mårtensson, Göran  
Vallby 878  
S-231 97 Klagstorp  
Sweden

hereby appoints (appoint) Mr. (Ms., Miss, Mrs.) [Name, address]:

Stenberg, Yngve  
c/o Perstorp AB  
S-284 80 Perstorp  
Sweden

☒ as agent

☐ as common representative

to act on his (her, their) behalf before the competent International Authorities in connection with the international application on [title of the invention, applicant's or agent's file reference, if any has been indicated in the request, international application number, if already available]:

Vertically joined floor boards

filed with the [name of the Office] .. Swedish Patent Office ..  
as receiving Office and to make or receive payments on his (her, their) behalf.

Place: Trelleborg .. Date: 991001 ..

Signature of the applicant (where there are several applicants, each of them must sign):

Ola Olofsson  
Ola Olofsson

Göran Mårtensson  
Göran Mårtensson

[Type the name under the (each) signature and add, in case of legal persons, an indication of the capacity in which the person signs]



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : <b>E04F 15/04</b>	<b>A1</b>	(11) International Publication Number: <b>WO 00/20706</b> (43) International Publication Date: <b>13 April 2000 (13.04.00)</b>
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(21) International Application Number: **PCT/SE99/01701**(22) International Filing Date: **27 September 1999 (27.09.99)**

(30) Priority Data:

9803379-8	6 October 1998 (06.10.98)	SE
9900432-7	10 February 1999 (10.02.99)	SE
9902883-9	12 August 1999 (12.08.99)	SE

(71) Applicant (for all designated States except US): **PERSTORP FLOORING AB [SE/SE]; Strandridaregatan 8, S-231 25 Trelleborg (SE).**

(72) Inventors; and

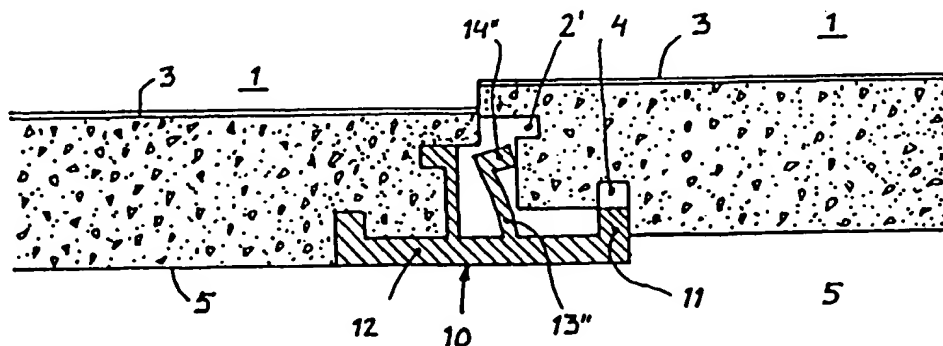
(75) Inventors/Applicants (for US only): **OLOFSSON, Ola [SE/SE]; Torupsgatan 23, S-231 66 Trelleborg (SE). MÅRTENSSON, Göran [SE/SE]; Vallby 878, S-231 97 Klagstorp (SE).**

(74) Agent: **STENBERG, Yngve; Perstorp AB, S-284 80 Perstorp (SE).**

(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**Published***With international search report.**Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.*

(54) Title: **FLOORING MATERIAL COMPRISING BOARD SHAPED FLOOR ELEMENTS WHICH ARE JOINED VERTICALLY BY MEANS OF SEPARATE ASSEMBLY PROFILES**

**(57) Abstract**

Vertically joined flooring material comprising floor boards (1), which floor boards (1) are provided with edges (2) which are provided with a groove (2'), a lower side (5) and a decorative top surface (3). The floor boards (1) are intended to be joined by means of separate joining profiles (10). All edges (2) are provided with one groove (4) each, which grooves (4) are arranged parallel to its respective edge (2). The joining profiles (10) are provided with lips (11) arranged in pairs, which lips (11) each are intended to be received by the groove (4) of a floor board (1) guiding and fixing adjacent floor boards (1) horizontally. The joining profile (10) is provided with a central cheek section (13) which is comprised by a first and a second independently resilient cheek (13' and 13'' respectively). The cheek (13' and 13'' respectively) are provided with one tongue (14' and 14'' respectively) each whereby the tongues (14' and 14'' respectively) are intended to be received by one groove (2') each so that adjacent floor boards (1) are guided in a vertical direction.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/01701

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: E04F 15/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: E04F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SE 8202375 A (IKEA SVENSKA AB), 16 October 1983 (16.10.83), figure 1, detail 7,8,3,11 --	1-7
A	SE 462809 B (C.-G. BARNER), 3 Sept 1990 (03.09.90), page 4, line 15 - line 18, figure 2, detail 3 --	8
A	FR 2697275 A1 (CREBAT), 29 April 1994 (29.04.94), figure 2 --	1-7
A	FR 2268922 A1 (LES ENTREPRISES BRIATTE ET CIE), 21 November 1975 (21.11.75), detail 40,41,42 --	8-10

☒ Further documents are listed in the continuation of Box C.

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- "&" document member of the same patent family

Date of the actual completion of the international search

17 January 2000

Date of mailing of the international search report

07 -02- 2000

Name and mailing address of the ISA.

Swedish Patent Office  
Box 5055, S-102 42 STOCKHOLM  
Facsimile No. + 46 8 666 02 86

Authorized officer

Örjan Nylund / MR  
Telephone No. + 46 8 782 25 00

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/SE 99/01701

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 4067155 A (D.L. RUFF ET AL), 10 January 1978 (10.01.78), figures 1,2</p> <p style="text-align: center;">-- -----</p>	8-10

# INTERNATIONAL SEARCH REPORT

Information on patent family members

02/12/99

International application No.

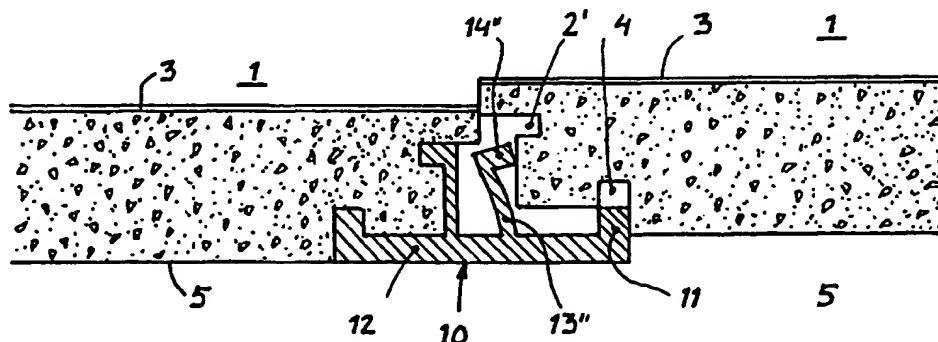
PCT/SE 99/01701

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
SE 8202375 A	16/10/83	NONE	
SE 462809 B	03/09/90	SE 8802597 A	12/04/90
FR 2697275 A1	29/04/94	NONE	
FR 2268922 A1	21/11/75	NONE	
US 4067155 A	10/01/78	DE 2638518 A,B,C	03/03/77
		FR 2322244 A,B	25/03/77

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> : <b>E04F 15/04</b>		<b>A1</b>	(11) International Publication Number: <b>WO 00/20706</b>
			(43) International Publication Date: 13 April 2000 (13.04.00)
(21) International Application Number: PCT/SE99/01701 (22) International Filing Date: 27 September 1999 (27.09.99) (30) Priority Data: 9803379-8                      6 October 1998 (06.10.98)                      SE 9900432-7                      10 February 1999 (10.02.99)                      SE 9902883-9                      12 August 1999 (12.08.99)                      SE (71) Applicant (for all designated States except US): PERSTORP FLOORING AB [SE/SE]; Strandridaregatan 8, S-231 25 Trelleborg (SE). (72) Inventors; and (75) Inventors/Applicants (for US only): OLOFSSON, Ola [SE/SE]; Torupsgatan 23, S-231 66 Trelleborg (SE). MÅRTENSSON, Göran [SE/SE]; Vallby 878, S-231 97 Klagstorp (SE). (74) Agent: STENBERG, Yngve; Perstorp AB, S-284 80 Perstorp (SE).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	

(54) Title: FLOORING MATERIAL COMPRISING BOARD SHAPED FLOOR ELEMENTS WHICH ARE JOINED VERTICALLY BY MEANS OF SEPARATE ASSEMBLY PROFILES



## (57) Abstract

Vertically joined flooring material comprising floor boards (1), which floor boards (1) are provided with edges (2) which are provided with a groove (2'), a lower side (5) and a decorative top surface (3). The floor boards (1) are intended to be joined by means of separate joining profiles (10). All edges (2) are provided with one groove (4) each, which grooves (4) are arranged parallel to its respective edge (2). The joining profiles (10) are provided with lips (11) arranged in pairs, which lips (11) each are intended to be received by the groove (4) of a floor board (1) guiding and fixing adjacent floor boards (1) horizontally. The joining profile (10) is provided with a central cheek section (13) which is comprised by a first and a second independently resilient cheek (13' and 13'' respectively). The cheek (13' and 13'' respectively) are provided with one tongue (14' and 14'' respectively) each whereby the tongues (14' and 14'' respectively) are intended to be received by one groove (2') each so that adjacent floor boards (1) are guided in a vertical direction.

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EE	Estonia						

**FLOORING MATERIAL COMPRISING BOARD SHAPED FLOOR ELEMENTS WHICH ARE JOINED VERTICALLY BY MEANS OF SEPARATE ASSEMBLY PROFILES**

The present invention relates to a flooring material comprising board shaped floor elements which are joined vertically by means of separate assembly profiles.

Prefabricated floor boards which are provided with tongue and groove at the edges are well known today. As these are rather easy to install, this can be achieved by the average handy man. Such floors can be made of solid wood, particle board or fibre board. These floor boards are most often provided with a top surface, such as lacquer or some kind of laminate. The board are most often joined by being glued together via their tongue and groove. The most common types of floor boards are, however, burdened with the disadvantage to form gaps of varying width between the floor boards if the installer is not thorough enough. Dirt will accumulate in such gaps. Moisture will furthermore enter the joints which will cause the core to expand in cases where it is made of solid wood, fibre board or particle board which usually is the case. This expansion will cause the top surface to rise, closest to the joint, which radically decreases the useful life of the floor due to increased wear on the protruding edges of the floor board. In order to avoid this type of gaps it is known to use different type of tensioning devices used for forcing the floor boards together during installation. This operation is, however, rather awkward and it is desirable to achieve a floor board with a joint which is self-orienting and thereby automatically will find its correct position. It would also be possible to use such a joint without having to use glue.

One such floor is known through WO 93/13280 wherein a form of clips is intended to keep floor boards together. The floor boards are, besides being provided with traditional tongue and groove, also provided with a single longitudinal groove on the side facing downwards. The floor boards are resting on the clips why a great number of such clips will have to be used to avoid resilient movements in the floor. Such movements will cause noise. The distance between the floor boards and the surface below will also cause acoustic resonance which will give the floor a "noisy" character. This is not desirable. The disadvantage with a groove and tongue solution is foremost that the tongue will have to be milled from the board which will cause a loss of the expensive top surface. It will furthermore be possible to assemble the floor boards, oriented in one direction only. The tongue is also a delicate part which is easily damaged during transport and handling which makes assembly difficult or causes impaired fitting.

Another such floor is known through Swedish patent application No. 8202375-5 in which floor boards are provided with grooves at the opposite edges. A separate profile, in which a tongue is included, is used for guiding the boards horizontally. The lower part of the profile is also provided with girders protruding upwards.



These girders are intended to interact with grooves on the lower side of the floor boards. A floor according to Se application No. 8202375-5 will however have to be assembled in a way that makes it necessary for the installer to stand on his knees since the floor will have to be turned into, or slid sideways, into the desired position.

It has, through the present invention been possible to solve the above mentioned problems, whereby a floor that can withstand handling, demands a minimum of milling of the decorative top surface and is easy to install has been achieved. The invention relates to floor boards which are joined vertically, with a mainly square, rectangular, rhomboidal or polygonal shape, as seen from above. The floor boards are provided with edges which are provided with a groove, a lower side and a decorative top surface. The floor boards are intended to be joined by means of separate joining profiles. The invention is characterised in that all edges are provided with one groove each, which grooves are arranged parallel to its respective edge. The joining profiles are provided with lips arranged in pairs, which lips each are intended to be received by the groove of a floor board so that adjacent floor boards with the grooves at the adjacent edges is guided and fixed horizontally by the lips of a joining profile. The lips are connected to each other by a middle section of the joining profile. The joining profile is provided with a central cheek section which is comprised by a first and a second independently resilient cheek which cheeks are provided with one tongue each. The tongues are intended to be received by one groove each so that adjacent floor boards are guided in a vertical direction.

The grooves on the lower side of the floor boards are suitably arranged on distance from the closest edge less than half, preferably less than one quarter of the width of a floor board.

The floor boards are suitably provided with a groove at the edges. The distance between each groove and the closest edge is mainly the same.

The part of the floor board located between each edge and its respective groove is preferably thinner than the maximum thickness of the floor board by means of a recess located on the lower side.

The distance between the lips of the joining profile is preferably somewhat smaller than the distance between the grooves placed on each side of and closest to the edge of two adjacent floor boards. The joining profile will hereby exercise a clamping force on the joint.

The joining profiles are suitably manufactured in long sections which suitably are manufactured through extrusion which is a well known and rational manufacturing method. The joining profiles may then be provided in different lengths or in rolls

which may be cut into a desired length during the assembly. The length of the joining profiles suitably exceeds the length of a floor board before being cut. One advantage with such long joining profiles is that joining profiles may be installed in full-length over, for example, the width of the floor which will reduce the risk for gaps in the joints in cases where the lateral joints overlap. Such assembly where the joints between the floor boards overlap in both directions may of course be used even if the joining profile has the same length as, or is shorter than, the floor boards. The shorter side edges of the floor boards may be joined by using shorter lengths of the joining profile. The joining profiles are installed gradually as each new row of floor boards are joined with the previously installed one. The flooring material according to the present invention is very suited for being installed without any use of adhesives such as glue. It is of course possible to use adhesives to make the assembly more permanent by apply or coat parts of the joining profiles or parts of the floor board with glue or double-faced adhesive tape. The glue or tape is then suitably applied on the surfaces of the joining profiles situated between the lips as well as on the edges of the floor boards. Since the floor boards according to the present invention is provided with the same geometry along all of the edges it will become possible to turn the floor board in the desired direction. It will therefore be possible to perform patterned design installations for the layman.

According to the present invention the joining profiles constitute separate parts in opposite to the most common types of flooring materials using tongue and groove. This will be a great advantage in connection to manufacturing, transport and installation since traditional joining incorporates very delicate and sensitive parts. These parts are traditionally made of fibre board or particle board which are very easy to either brake or deform. Damaged floor boards will normally have to be rejected. Joining profiles according to the present invention may be manufactured from a number of materials and through a number of different manufacturing methods. Among suitable methods can be mentioned injection moulding and extrusion. Suitable materials are thermoplastic materials such as poly olefins, polystyrene, polyvinyl chloride or acrylnitril-butadiene-styrene-copolymer. These can be filled with for example sawdust, cellulose or lime to foremost increase the dimension stability but also to increase the adhesion when being glued.

According to an alternative embodiment of the invention a decorative strip is intended to be installed from above into an intentional gap formed between two floor boards. The decorative strip is preferably provided with heels at its lower part. The heels are intended to snap-join with depressions on the joining profile. The decorative strip is further provided with shoulders which are intended to rest against the upper edges of the joining profile.

Such a decorative strip may be used to increase the decorative effect in a floor and can be installed between every second or third floor board as well as between

every floor board. The upper surface of the decorative strip may be covered with a decorative thermosetting laminate with a pattern that matches the rest of the floor. Also profiles made of metal might be used. Among other materials that might be used can be mentioned poly olefins, polystyrene, polyvinyl chloride and acrylnitril-butadiene-styrene-copolymer. These can be filled with for example sawdust, cellulose or lime to foremost increase the dimension stability but also to increase the adhesion when being glued. In cases where the decorative strip is to be provided with upper surface of thermoplastic laminate it is suitable to manufacture the decorative strip of a thermoplastic material with 15 - 60 % filler of for example cellulose powder. It is also possible to use the decorative strip as a dilatation device, i.e. to absorb temperature and moisture related expansion in the floor. The decorative strip is then suitably manufactured of a thermoplastic elastomer.

A flooring material according to the present invention is suited for installations without use of glue. It is of course possible to use glue or double-faced adhesive tape in order to make the installation completely permanent. The glue or tape is then suitably applied in, or in connection to, possible cavities in the joint before the assembly.

The floor boards according to the present invention is assembled by being pressed downwards to snap-join with previously installed floor boards. Commonly known floor boards are assembled horizontally by being forced or knocked together. Some known floor boards are assembled by being turned or prized into position. These known floor boards are guided vertically and in a few cases also horizontally on a great number of variations on the tongue-and-groove theme. It is very difficult to apply sufficient horizontal force manually at floor level whereby different types of tensioning devices are essential when installing such floors. The installer will only have to apply some of his body weight over the joint and the floor boards will snap together, when installing floors according to the present invention. It is hereby becomes possible walk the floor boards into position once they are placed correctly.

It is also possible to lay the floor standing up by using very simple tools, for example a couple of rods with a suction cup at the lower ends. It would thereby be possible to install the floor without having to crawl on ones knees. Industrial injuries such as back and knee problems are very common by floor installers. It also becomes possible to remove a floor board even though it is completely surrounded by other floor boards, provided it isn't glued. This operation is suitably achieved by using a more powerful type of suction cup to lift the floor board, one edge at the time. It is also possible to drill a hole in the floor board to be replaced in order to get a place to clutch the board. Among reasons why a single floor board needs to be changed are when a heavy object, such as a flat iron, is dropped on the floor. It has until

now been possible only for a professional floor installer to achieve a repair in these types of floors since great experience of profession and a multitude of tool are needed. Such a repair is naturally very costly. It has through the present invention been made possible for a layman to achieve such a repair without having to utilise special tools.

The invention is described further together with enclosed drawings showing different embodiments of a flooring material according to the invention whereby,

-figure 1a - 1c show in exploded view and in cross-section a first embodiment of a flooring material according to the invention, before, during and after the assembly.

-figure 2a - 2c show different embodiments of a second alternative embodiment of a flooring material according to the invention.

Figure 1a - 1c show in exploded view, schematically and in cross-section the same embodiment of a vertically joined flooring material according to the invention. The flooring material is shown before (fig. 1a), during (fig. 1b) and after (figure 1c) the assembly. The floor boards 1 are provided with edges 2 which are provided with a groove 2' a lower side 5 and a top surface. The floor boards 1 are intended to be joined by means of separate joining profiles 10. All edges 2 are provided with one groove 4 each, which grooves 4 are arranged parallel to their respective edges 2. The grooves are placed on the lower side 5 at a distance of less than one fourth of the width of the floor board 1, from the closest edge 2. The section placed between the edges 2 and the grooves 4 has a thickness which is less than the maximum floor board thickness by a recess 6 on the lower side 5 of the floor board 1. The thickness of the floor board 1 is normally between 5 and 15 mm whereby a suitable depth of the recess is 1 - 5 mm. The joining profile 10 is provided with lips 11 arranged in pairs. The lips 11 are each intended to be received by one of the grooves 4 of a floor board 1 so that adjacent floor boards 1 with the grooves at the adjacent edges 2 are guided and fixed horizontally via the lips 11 of a joining profile 10. The lips 11 are connected to each other via a middle section 12 on the joining profile 10. The floor boards 1 will hereby be forced against each other whereby gaps can be avoided. The joining profiles 10 are provided with a central cheek section 13 which is constituted by a first and a second independently resilient cheek 13' and 13" respectively. The cheeks 13' and 13" respectively, are provided with each one tongue 14' and 14" respectively. The tongues 14' and 14" respectively are intended to be received by each one groove 2' whereby adjacent floor boards 1 are guided in the vertical direction. The joining profiles 10 are manufactured in lengths exceeding the length of a floor board 1 and are cut to the desired length at the

assembly. It is possible to provide the joining profiles 10 in the form of rolls. The embodiment shown in the figures 1a - c will give a minimum of machining and loss of the costly decorative upper surface 3 during manufacturing.

The floor boards 1 most often includes a core which is covered with an upper decorative surface layer 3. The core is most often constituted of saw dust, fibre or particles of wood which are bonded together with glue or resin. Since the cellulose based material in the core is sensitive to moisture, it is advantageous to coat the surface closest to the joint if the floor will be exposed to moisture. This surface treatment may include wax, resin or some kind of lacquer. It is not necessary to coat the joint when the floor boards are to be glued together since the glue itself will protect from penetration of moisture. The upper decorative surface 3 is constituted by a decorative paper impregnated with melamine-formaldehyde resin. One or more layers of so-called overlay paper made of  $\alpha$ -cellulose which are impregnated with melamine-formaldehyde resin are advantageously placed on top of the decorative paper. One or more of the layers may be sprinkled with hard particles, of for example,  $\alpha$ -aluminium oxide, silicon oxide or silicon carbide in connection to the impregnation in order to improve the abrasion resistance. The lower side 5 may be surface treated with lacquer or a surface layer of paper and resin.

Figure 2a - 2c shows schematically and in cross-section different embodiments of an alternative embodiment of a vertically joined flooring material according to the invention. The floor boards 1 are provided with edges 2 which are provided with grooves 2', a lower side 5 and an upper decorative surface 3. The floor boards 1 are intended to be joined by means of separate joining profiles 10. All edges 2 are provided with each one groove 4, which grooves 4 are arranged parallel to its respective edge 2. The grooves 4 on the lower side 5 are arranged on distance of less than one quarter, of the width of the floor board 1, from the closest edge 2. The section placed between the edges 2 and the grooves 4 has a thickness which is less than the maximum floor board thickness by a recess 6 on the lower side 5 of the floor board 1. The thickness of the floor board 1 is normally between 5 and 15 mm whereby a suitable depth of the recess is 1 - 5 mm. The joining profile 10 is provided with lips 11 arranged in pairs. The lips 11 are arranged on a greater distance from each other than as previously shown in figure 1. The lips 11 are each intended to be received by one of the grooves 4 of a floor board 1 so that adjacent floor boards 1 with the grooves 4 at the adjacent edges 2 are guided and fixed horizontally via the lips 11 of a joining profile 10. The lips 11 are connected to each other via a middle section 12 on the joining profile 10. The floor boards 1 will hereby be forced against each other whereby gaps can be avoided. The joining profiles 11 are provided with a central cheek section 13 which is constituted by a

first and a second independently resilient cheek 13' and 13" respectively. The cheeks 13' and 13" respectively are placed at a greater distance from each other than as previously shown in figure 1. The cheeks 13' and 13" respectively are provided with each one tongue 14' and 14" respectively. The tongues 14' and 14" respectively are intended to be received by each one groove 2' whereby adjacent floor boards 1 are guided in the vertical direction. The joining profiles 10 are manufactured in lengths exceeding the length of a floor board 1 and are cut to the desired length during the installation. It is possible to provide the joining profiles 10 in the form of rolls. The embodiments shown in the figures 2a - c will give a minimum of machining and loss of the costly decorative upper surface 3 during manufacturing. A decorative strip 20 is assembled from above, into the gap that is formed between two floor boards 1. The decorative strip 20 is provided with heels 21 at its lower part. The heels 21 are intended to interact with depressions 15 on the joining profile 10. The decorative strip 20 is furthermore provided with shoulders 22 which are intended to interact with edges 16 on the joining profile 10.

Such a decorative strip 20 may be used to increase the decorative effect in a floor and may be installed between every other or third floor board 1 as well as between each of the boards. The upper surface of the decorative strip 20 may, for example, be covered with a decorative thermosetting laminate with a pattern that matches the surface the rest of the floor is provide with. The decorative strip is then suitably manufactured of a thermosetting resin or a thermoplastic material with 15 - 60 % filler for example in the form of saw dust.

It is also possible to use the decorative strip 20 as a dilatation device (figure 2c) in order to absorb movements in the floor caused thermal or moisture related expansion in the floor. The decorative strip is then suitably manufactured of a thermoplastic elastomer.

The invention is limited by the embodiments shown since these can be varied in different ways within the scope of the invention.

**Claims**

1. Vertically joined flooring material comprising floor boards (1) with a mainly square, rectangular, rhomboidal or polygonal shape, as seen from above, which floor boards (1) are provided with edges (2) which are provided with a groove (2'), a lower side (5) and a decorative top surface (3), whereby the floor boards (1) are intended to be joined by means of separate joining profiles (10),  
c h a r a c t e r i s e d in that, all edges (2) are provided with one groove (4) each, which grooves (4) are arranged parallel to its respective edge (2) and that the joining profiles (10) are provided with lips (11) arranged in pairs, which lips (11) each are intended to be received by the groove (4) of a floor board (1) so that adjacent floor boards (1) with the grooves (4) at the adjacent edges (2) is guided and fixed horizontally by the lips (11) of a joining profile (10), which lips (11) are connected to each other by a middle section (12) of the joining profile (10) and that the joining profile (10) is provided with a central cheek section (13) which is comprised by a first and a second independently resilient cheek (13' and 13" respectively) which cheeks (13' and 13" respectively) are provided with one tongue (14' and 14" respectively) each whereby the tongues (14' and 14" respectively) are intended to be received by one groove (2') each so that adjacent floor boards (1) are guided in a vertical direction.
2. Vertically joined flooring material according to claim 1, c h a r a c t e r i s e d in that the grooves (4) on the lower side (5) are arranged on distance from the closest edge (2) less than half, preferably less than one quarter of the width of a floor board (1).
3. Vertically joined flooring material according to claim 2, c h a r a c t e r i s e d in that the floor boards (1) are provided with a groove (4) at the edges (2) and that the distance between each groove (4) and the closest edge (2) is mainly the same.
4. Vertically joined flooring material according claim 2 or 3, c h a r a c t e r s i e d in that the part of the floor board (1) located between each edge and its respective groove (4) is thinner than the maximum thickness of the floor board (1) by means of a recess (6) located on the lower side (5).
5. Vertically joined flooring material according any of the claims 1 - 4, c h a r a c t e r i s e d in that, the distance between the lips (11) of the joining profile (10) is somewhat smaller than the distance between the grooves (4) placed on each side of and closest to the edge (2) of two adjacent floor boards (1).

6. Vertically joined flooring material according any of the claims 1 - 5,  
c h a r a c t e r i s e d in that, the joining profiles (10) are manufactured in long sections which may be cut into a desired length and that the length of the joining profiles (10) exceeds the length of a floor board (1) before being cut.
7. Vertically joined flooring material according any of the claims 1 - 6,  
c h a r a c t e r i s e d in that, the joining profiles (10) and/or the floor boards are partially coated with glue or adhesive tape.
8. Vertically joined flooring material according any of the claims 1 - 7,  
c h a r a c t e r i s e d in that, a decorative strip (20) is intended to be assembled from above in an intentional gap formed between two floor boards (1).
9. Vertically joined flooring material according to claim 8,  
c h a r a c t e r i s e d in that, the decorative strip (20) is provided with heels (21) on its lower part intended to interact with corresponding depressions (15) on the joining profile (10).
10. Vertically joined flooring material according to claim 8 or 9,  
c h a r a c t e r i s e d in that, the decorative strip (20) is provided with shoulders (22) intended to rest against the upper edges (16) of the joining profile (10).



Fig. 1a

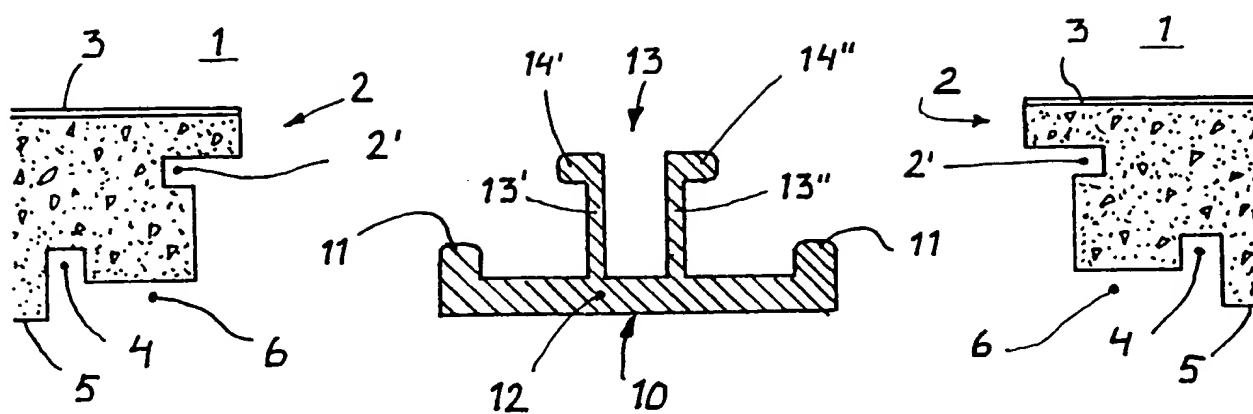
 $1/2$ 

Fig. 1b

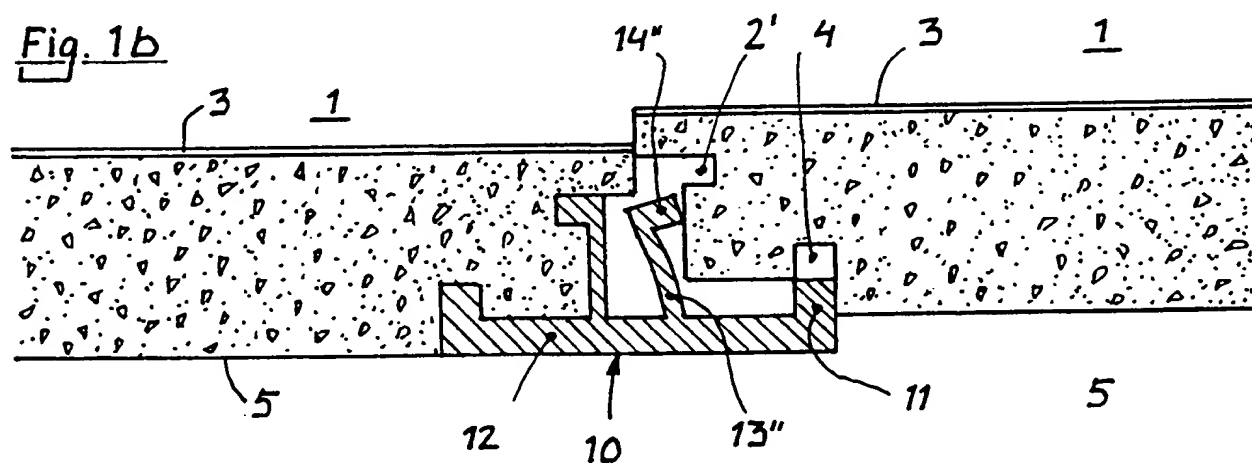


Fig. 1c

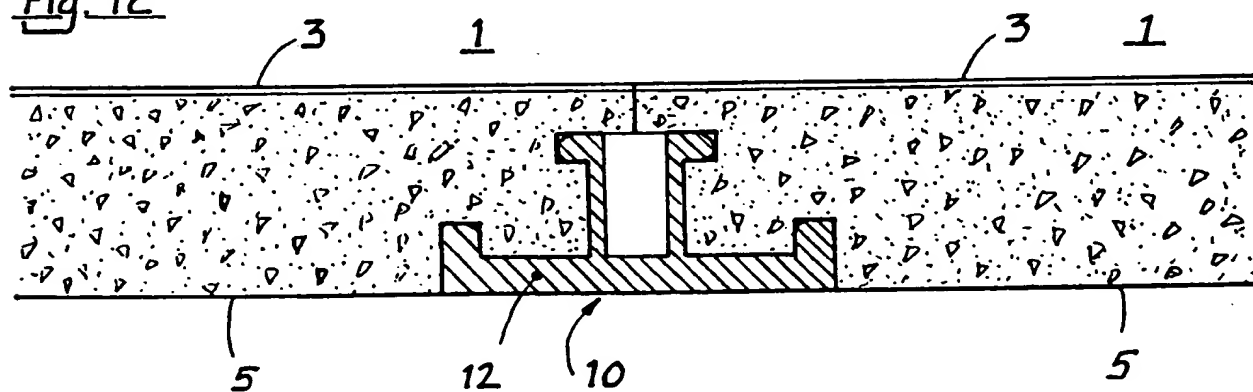
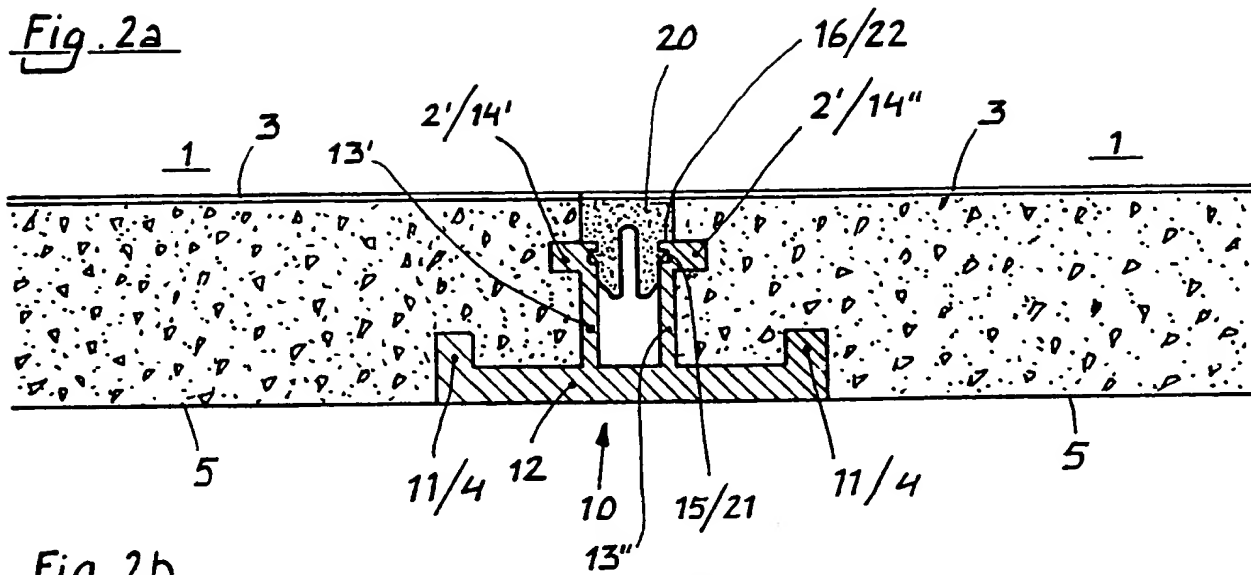
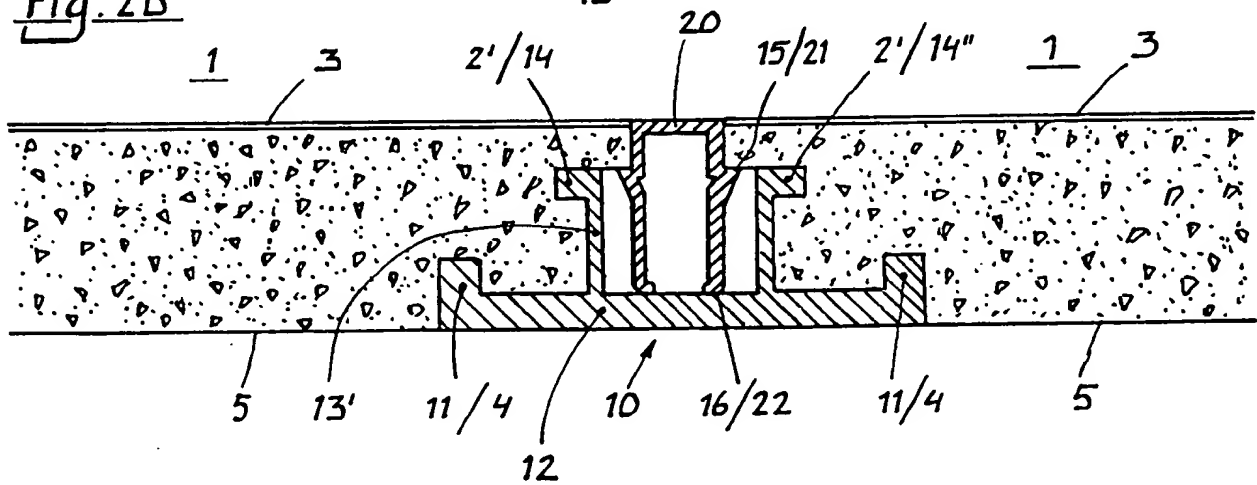
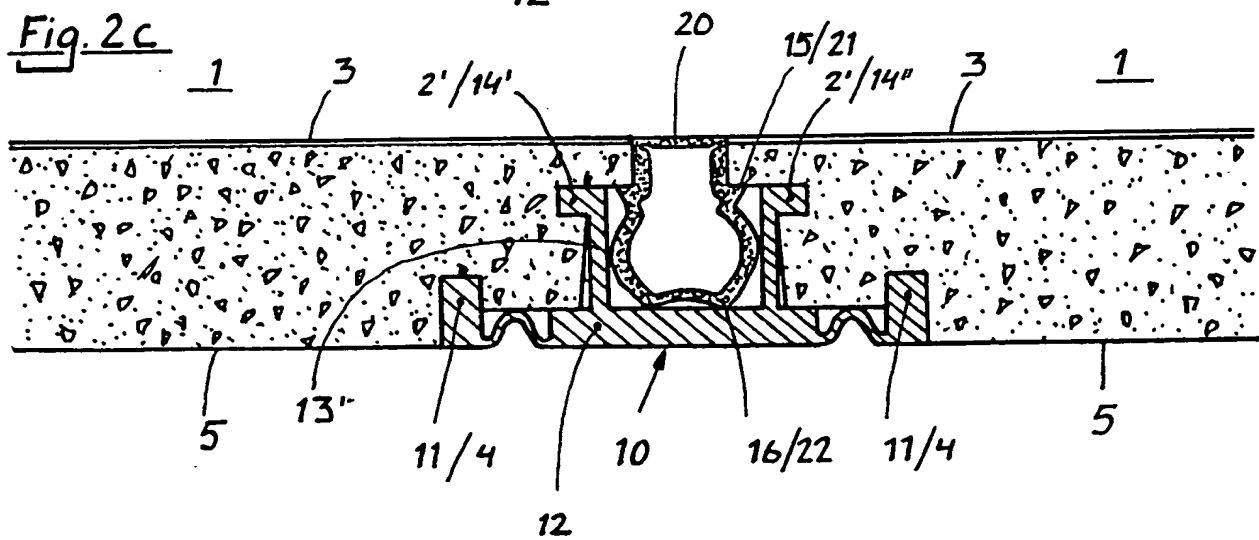


Fig. 2aFig. 2bFig. 2c

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/01701

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: E04F 15/04

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: E04F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SE 8202375 A (IKEA SVENSKA AB), 16 October 1983 (16.10.83), figure 1, detail 7,8,3,11 --	1-7
A	SE 462809 B (C.-G. BARNER), 3 Sept 1990 (03.09.90), page 4, line 15 - line 18, figure 2, detail 3 --	8
A	FR 2697275 A1 (CREBAT), 29 April 1994 (29.04.94), figure 2 --	1-7
A	FR 2268922 A1 (LES ENTREPRISES BRIATTE ET CIE), 21 November 1975 (21.11.75), detail 40,41,42 --	8-10

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "B" earlier document but published on or after the international filing date
- "I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
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"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search

17 January 2000

Date of mailing of the international search report

07-02-2000

Name and mailing address of the ISA/  
Swedish Patent Office  
Box 5055, S-102 42 STOCKHOLM  
Facsimile No. +46 8 666 02 86

Authorized officer

Örjan Nylund / MR  
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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 99/01701

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4067155 A (D.L. RUFF ET AL), 10 January 1978 (10.01.78), figures 1,2  -- -----	8-10

# INTERNATIONAL SEARCH REPORT

Information on patent family members

02/12/99

International application No.

PCT/SE 99/01701

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
SE	8202375	A	16/10/83	NONE	
SE	462809	B	03/09/90	SE 8802597 A	12/04/90
FR	2697275	A1	29/04/94	NONE	
FR	2268922	A1	21/11/75	NONE	
US	4067155	A	10/01/78	DE 2638518 A,B,C FR 2322244 A,B	03/03/77 25/03/77

# PCT

## REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference  
(if desired) (12 characters maximum)

Case 627 PCT

<b>Box No. I</b>	<b>TITLE OF INVENTION</b>		
	Vertically joined floor boards		
<b>Box No. II</b>	<b>APPLICANT</b>		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)  Perstorp Flooring AB Strandridaregatan 8 S-231 25 Trelleborg Sweden		<input type="checkbox"/> This person is also inventor.  Telephone No. +46 410 36 31 00  Facsimile No. +46 410 15560  Teleprinter No.	
State (that is, country) of nationality: SE		State (that is, country) of residence: SE	
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input checked="" type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box			
<b>Box No. III</b>	<b>FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)</b>		
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)  Olofsson, Ola Torupsgatan 23 S-231 66 Trelleborg/Sweden		This person is:  <input type="checkbox"/> applicant only <input checked="" type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)	
State (that is, country) of nationality: SE		State (that is, country) of residence: SE	
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box			
<input checked="" type="checkbox"/> Further applicants and/or (further) inventors are indicated on a continuation sheet.			
<b>Box No. IV</b>	<b>AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE</b>		
The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:		<input checked="" type="checkbox"/> agent <input type="checkbox"/> common representative	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)  Stenberg, Yngve c/o Perstorp AB S-284 80 Perstorp/Sweden		Telephone No. +46 435 38310  Facsimile No. +46 435 38920  Teleprinter No. 72000 perstp s	
<input type="checkbox"/> Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.			

## Continuation of Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

*If none of the following sub-boxes is used, this sheet should not be included in the request.*

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Mårtensson, Göran  
Vallby 878  
S-231 97 Klagstorp/Sweden

This person is:

- ☐ applicant only  
☒ applicant and inventor  
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:  
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This person is:

- ☐ applicant only  
☐ applicant and inventor  
☐ inventor only (If this check-box is marked, do not fill in below.)

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This person is:

- ☐ applicant only  
☐ applicant and inventor  
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of:

- ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- ☐ applicant only  
☐ applicant and inventor  
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**Box No.V DESIGNATION OF STATES**

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

**Regional Patent**

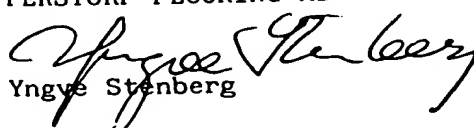
- ☒ **AP** ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ **EA** Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP** European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA** OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line) .....

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- |  |  |
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| <input checked="" type="checkbox"/> CZ Czech Republic                        | <input checked="" type="checkbox"/> RO Romania   |
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| <input checked="" type="checkbox"/> GH Ghana                                 | <input checked="" type="checkbox"/> TM Turkmenistan  |
| <input checked="" type="checkbox"/> GM Gambia                                | <input checked="" type="checkbox"/> TR Turkey  |
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| <input checked="" type="checkbox"/> ID Indonesia                             | <input checked="" type="checkbox"/> UG Uganda  |
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| <input checked="" type="checkbox"/> KG Kyrgyzstan                            | <input checked="" type="checkbox"/> ZW Zimbabwe  |
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| <input checked="" type="checkbox"/> KR Republic of Korea                     | Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet: |
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| <input checked="" type="checkbox"/> LC Saint Lucia                           | <input type="checkbox"/> .....   |
| <input checked="" type="checkbox"/> LK Sri Lanka                             |  |

**Precautionary Designation Statement:** In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.)



<b>Box No. VI PRIORITY CLAIM</b>		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application: regional Office	international application: receiving Office
item (1) 06-10-1998	9803379-8	Sweden		
item (2) 10-02-1999	9900432-7	Sweden		
item (3) 12-08-1999	9902883-9	Sweden		
<input checked="" type="checkbox"/> The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): SE 9803379-8 SE 9900432-7 SE 9902883-9 * Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.				
<b>Box No. VII INTERNATIONAL SEARCHING AUTHORITY</b>				
Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):		Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):		
ISA /		Date (day/month/year)	Number	Country (or regional Office)
		We have not yet received the ITS-Report		
<b>Box No. VIII CHECK LIST; LANGUAGE OF FILING</b>				
This international application contains the following number of sheets:		This international application is accompanied by the item(s) marked below:		
request	4	1. <input checked="" type="checkbox"/> fee calculation sheet		
description (excluding sequence listing part)	7	2. <input type="checkbox"/> separate signed power of attorney		
claims	2	3. <input checked="" type="checkbox"/> copy of general power of attorney; reference number, if any: GF 92/91		
abstract	1	4. <input type="checkbox"/> statement explaining lack of signature		
drawings	2	5. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s):		
sequence listing part of description		6. <input type="checkbox"/> translation of international application into (language):		
Total number of sheets	16	7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material		
		8. <input type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form		
		9. <input type="checkbox"/> other (specify):		
Figure of the drawings which should accompany the abstract:		Language of filing of the international application: English		
<b>Box No. IX SIGNATURE OF APPLICANT OR AGENT</b>				
Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).				
Perstorp 1999-09-24 PERSTORP FLOORING AB  Yngve Stenberg				

For receiving Office use only		2. Drawings:  <input type="checkbox"/> received:  <input type="checkbox"/> not received:
1. Date of actual receipt of the purported international application:		
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		
5. International Searching Authority (if two or more are competent): ISA /	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.	

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Date of receipt of the record copy by the International Bureau:	

Form PCT/RO/101 (last sheet) (July 1998; reprint July 1999) See Notes to the request form

This sheet is not part of and does not count as a sheet of the international application.

PCT

FEE CALCULATION SHEET  
Annex to the Request

For receiving Office use only

International application No.

Date stamp of the receiving Office

Applicant's or agent's  
file reference

Case 627 PCT

Applicant Perstorp Flooring AB  
Strandridaregatan 8  
S-231 25 Trelleborg/Sweden

CALCULATION OF PRESCRIBED FEES

1. TRANSMITTAL FEE

1000 T

2. SEARCH FEE

8510 S

International search to be carried out by \_\_\_\_\_  
(If two or more International Searching Authorities are competent in relation to the international application, indicate the name of the Authority which is chosen to carry out the international search.)

3. INTERNATIONAL FEE

Basic Fee

The international application contains \_\_\_\_\_ sheets.

first 30 sheets 3500 b1

\_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_ b2

remaining sheets additional amount

Add amounts entered at b1 and b2 and enter total at B 3500 B

Designation Fees

The international application contains \_\_\_\_\_ designations.

10 x 800 = 8000 D

number of designation fees payable (maximum 10) amount of designation fee

Add amounts entered at B and D and enter total at I 11500 I

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4. FEE FOR PRIORITY DOCUMENT (if applicable) P

5. TOTAL FEES PAYABLE

21010

Add amounts entered at T, S, I and P, and enter total in the TOTAL box

TOTAL

☐ The designation fees are not paid at this time.

MODE OF PAYMENT

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deposit account (see below)

☐ bank draft

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☐ cash

☒ other (specify): Bankgiro

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DEPOSIT ACCOUNT AUTHORIZATION (this mode of payment may not be available at all receiving Offices)

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Signature

ANNEX G1

Power of Attorney

ANNEX G1

(Concerning a Given International Application)

PATENT COOPERATION TREATY  
APPOINTMENT OF AGENT OR COMMON REPRESENTATIVE

## POWER OF ATTORNEY

The undersigned applicant(s):

Olofsson, Ola  
Torupsgatan 23  
S-231 66 Trelleborg  
SwedenMårtensson, Göran  
Vallby 878  
S-231 97 Klagstorp  
Sweden

hereby appoints (appoint) Mr. (Ms., Miss, Mrs.) [Name, address]:

Stenberg, Yngve  
c/o Perstorp AB  
S-284 80 Perstorp  
Sweden☒ as agent☐ as common representative

to act on his (her, their) behalf before the competent International Authorities in connection with the international application on [title of the invention, applicant's or agent's file reference, if any has been indicated in the request, international application number, if already available]:

Vertically joined floor boards


filed with the [name of the Office] Swedish Patent Office  
as receiving Office and to make or receive payments on his (her, their) behalf.

Place: Trelleborg

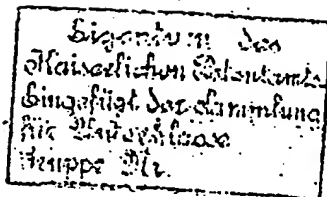
Date: 991001

Signature of the applicant (where there are several applicants, each of them must sign):

  
 .....  
 Ola Olofsson

  
 .....  
 Göran Mårtensson

[Type the name under the (each) signature and add, in case of legal persons, an indication of the capacity in which the person signs]



KAISERLICHES



PATENTAMT.

## PATENTSCHRIFT

— № 209979 —

KLASSE 37*d.* GRUPPE 6.

AUSGEGEBEN DEN 15. MAI 1909.

GEORGE B. STAPLES IN PHILADELPHIA, V. ST. A.

Verbindung von Fußbodenplatten durch den Stoß der Plattenstirnflächen untergreifende Klammern.

Patentiert im Deutschen Reiche vom 13. November 1906 ab.

Gegenstand der vorliegenden Erfindung ist eine Verbindung von Fußbodenplatten durch Klammern, die, unter dem Stoß der Plattenstirnflächen liegend, in Ausschnitte der Plattenlagerflächen eingreifen. Von den bekannten Plattenverbindungen dieser Art unterscheidet sich die vorliegende vorteilhaft dadurch, daß sie elastisch ist, dabei aber den festen Zusammenschluß nicht beeinträchtigt, und daß ferner das Lösen der Platten voneinander erheblich vereinfacht ist. Die Federung der Verbindung wird dadurch erzielt, daß die in die Vertiefungen der Lagerflächen einer jeden Fußbodenplatte eingreifenden Enden der Klammern umgebogen und mit federnd wirkenden Vorsprüngen versehen sind. Beim Aufdrücken der Platten auf die Schenkel der Verbindungsstücke werden die federnden Vorsprünge abwärts gedrückt. Hierbei preßt sich das Verbindungsstück in die Wände der Vertiefungen ein, wodurch die feste, aber gleichzeitig federnde Verbindung geschaffen wird.

Auf der Zeichnung ist der Erfindungsgegenstand veranschaulicht; es sind

Fig. 1 der Längsschnitt einer Fußbodenplatte,

Fig. 2 und 3 Ansichten der Plattenformen von unten,

Fig. 4, 5 und 6 Darstellungen der Verbindung zweier Fußbodenplatten,

Fig. 7 und 8 schaubildliche Darstellungen der Verbindungsklammern in zwei voneinander abweichenden Ausführungsformen.

Die Fußbodenplatte 1 besteht aus Gummi

oder einem anderen Stoff von ähnlicher Zusammensetzung, der einen bestimmten Grad von Elastizität besitzt, um neben dem Vorteil einer geringeren Abnutzung auch den eines angenehmen Fußbodenbelages zu gewähren. Die Fußbodenplatte ist auf ihrer Unterseite mit Vertiefungen 2 versehen, die rechtwinklig verlaufen (Fig. 1) und bestimmt sind, die Verbindungsklammern zweier Fußbodenplatten aufzunehmen. Diese Klammern weisen gemäß den Fig. 4, 5 und 6 im wesentlichen eine U-Form auf, deren aufrechtstehende Schenkel 3 in die hierfür passende Vertiefungen 2 der Fußbodenplatte eingreifen, während die Umbiegungen 4 der Schenkel 3 (Fig. 7) mit den Wänden der Vertiefungen in Berührung treten, um die Klammer in ihrer Lage festzuhalten und die angrenzenden Platten miteinander dicht schließend zu vereinigen. Die aus Metall bestehende Klammer, die eine gewisse Elastizität besitzt, paßt in die rechtwinkligen Vertiefungen der Fußbodenplatten genau ein; sobald aber die Klammer in die Vertiefungen fest eingebracht wird, so werden die anfangs im rechten Winkel zu den Schenkeln 3 der Klammer stehenden Vorsprünge 4 durch Berührung mit der Wandung der Vertiefungen nach abwärts gedrückt und zwar in einem Neigungswinkel, wie er beispielsweise in Fig. 6 angedeutet ist. Hierdurch drückt sich die Klammer mit ihren Ecken in die Wände der Vertiefungen ein, so daß eine feste Verbindung geschaffen und die Trennung der Fußbodenplatten voneinander verhindert ist. Die in

gewissem Grade in sich federnde Klammer sorgt dafür, daß die ineinandergreifenden Teile in ihrer Lage verharren und ein Lockern der Fußbodenplatten untereinander nicht eintritt.  
5 Beim Legen des Fußboßens wird eine Fußbodenplatte mit der Klammer in der beschriebenen Art versehen, wobei das freie Ende der Klammer zum Eingriff in die Vertiefung der angrenzenden Fußbodenplatte bereit liegt.

10 Gemäß den Fig. 4 und 8 besteht die Klammer aus einem metallenen Bande, dessen Schenkelenden 3\* und 4\* hakenförmig umgebogen sind. Diese hakenförmigen Enden greifen ebenfalls federnd in die Vertiefungen der Fußbodenplatten ein, wobei in den Vertiefungen  
15 niedrige Absätze vorgesehen sein können, die dazu beitragen, die Klammer in ihrer Lage zu erhalten.

Die hakenförmigen Enden der Klammer können sich bis zur Oberfläche der Fußbodenplatte erstrecken. Das Verlegen der Fußbodenplatten erfolgt in gleicher Weise, wie bei der Verbindung der Platten gemäß Fig. 6  
20 und 7.

25 Bei der Ausführungsform nach den Fig. 3 und 5 findet eine metallene Grundplatte 6 Verwendung, auf die das elastische Material der Fußbodenplatte aufgebracht ist. Die Grundplatte ist ebenfalls mit Vertiefungen versehen, die den Vertiefungen in der Fußbodenplatte entsprechen. Ein den Vertiefungen angrenzender Teil der Grundplatte ist bei 7  
30 (Fig. 5) ein wenig gehoben, damit die in die Vertiefungen einzubringende Klammer in eine Ebene mit den Unterseiten der Grundplatte 6  
35 fällt.

Bei dieser Ausführungsform ist der federnde Teil der Klammer dadurch gebildet, daß die Schenkelenden 8 (Fig. 5) aufgerollt sind, die sich der Form der Fußbodenplatte in den Vertiefungen anpassen, um die Klammer in ihrer Lage zu erhalten. 40

#### PATENT-ANSPRÜCHE:

45 1. Verbindung von Fußbodenplatten durch den Stoß der Plattenstirnflächen untergreifende Klammern, dadurch gekennzeichnet, daß die Klammern in Vertiefungen der Lagerflächen einer jeden Fußbodenplatte eingreifen und an den Enden ihrer umgebogenen Schenkel mit federnden Vorsprüngen versehen sind. 50

2. Verbindungsklammer nach Anspruch 1, dadurch gekennzeichnet, daß die federnden Vorsprünge (4) der Klammer durch Umbiegen der Schenkelenden (3) gebildet sind, die sich in die Wandung der Vertiefungen eindrücken. 55

3. Verbindungsklammer nach Anspruch 1, dadurch gekennzeichnet, daß die Schenkelenden (8) der Klammer aufgerollt sind und sich gegen vorspringende Kanten einer starren Grundplatte (7) stützen. 60

4. Verbindungsklammer nach Anspruch 1, dadurch gekennzeichnet, daß die in die Plattenvertiefungen eingreifenden Schenkel der Klammer bis zur Oberfläche der Bodenplatte geführt, und mit hakenförmig umgebogenen Enden (4\*) sich auf niedrige Absätze in den Vertiefungen der Bodenplatte stützen. 65 70

Hierzu 1 Blatt Zeichnungen.

Fig. 3.

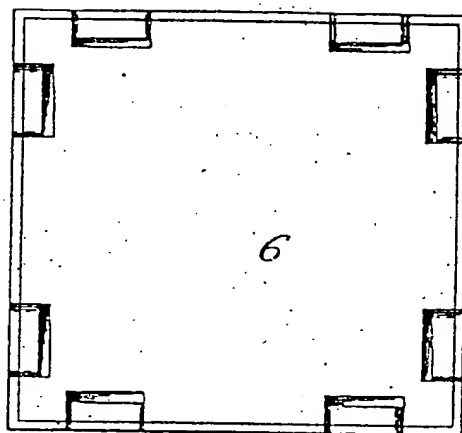


Fig. 2.

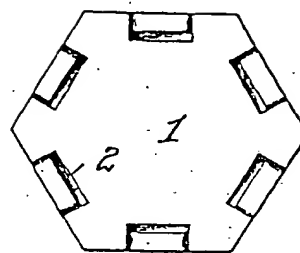


Fig. 1.

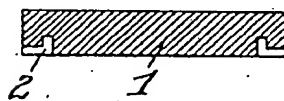


Fig. 6.

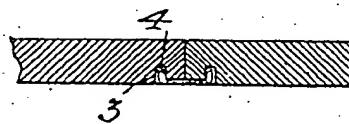


Fig. 5.

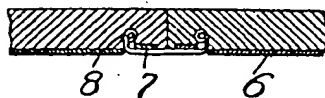


Fig. 4.

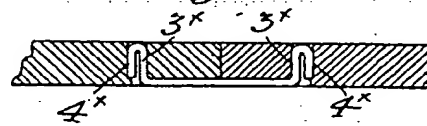


Fig. 7.

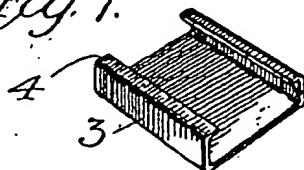
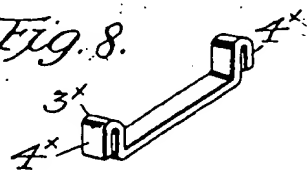


Fig. 8.



Zu der Patentschrift

№ 209979.